BUROHAPPOLD ENGINEERING

Tottenham Hotspur Football Club

Hotel Waste Strategy

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Glossary

Term	Definition
EV	Electric Vehicles
FM	Facilities Management
OWMS	Operational Waste Management Strategy
THFC	Tottenham Hotspur Football Club

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1 Introduction

An Outline Operational Waste Management Strategy (OWMS) is required to support the outline planning application for the Tottenham Hotspur Football Club (THFC) Hotel located in Tottenham, North London. The hotel is located in the South West of the wider THFC Masterplan which includes the stadium, THFC experience, southern residential development and a public square (which will contain spectator screens for members of the public to watch events taking place within the stadium). The hotel is planned to contain a mixture of hotel guest rooms and serviced apartments.

This document forms the OWMS for the THFC hotel only and covers how waste within the development will be managed. A separate OWMS has been prepared for the stadium, THFC experience, public square and southern residential. The planning application for the hotel is due to be submitted to the London Borough of Haringey (LBH) in August 2015.

The management of solid waste is an important element to consider as buildings are designed. Planning for future operational waste management ensures that a building will be able to operate efficiently and sustainably while minimising the impacts on the designed requirements building performance and site users. Good waste management will be essential ensure safe operational practice throughout the development. The waste management strategy must ensure that the hotels Facilities Management (FM) teams can collect, store, recycle, re-use and dispose of waste quickly and efficiently and in a discreet manner in line with THFC Waste Management Policy and the waste hierarchy as shown in **Figure 1.** Waste management operations will need to be hidden from visitors and residents to ensure that they do not interfere with the day to day operations within the residential towers.

Figure 1: The Waste Hierarchy

01 Minimise the amount of waste produced and avoid producing waste in the first instance

02 Re-use items as many times as possible

03 Recycle what you can once you have re-used it and it is no longer able to be used or is no longer needed

04 Turn waste materials into a new product where possible i.e. the generation of waste from energy

05 Dispose of what is unable to be recovered in a responsible way

In summary, the aims of the Operational Waste Management Strategy are to:

- Provide an outline estimate of anticipated waste generation for the hotel;

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- Provide guidance on waste management to ensure that adequate spatial provision for clean, hygienic and efficient storage and collection of waste is incorporated into the design. This is essential to the successful operation and aesthetics of the building;
- Enable the hotel FM teams to collect, store, recycle, re-use and dispose of the different types of waste quickly, sustainably and efficiently and in a discreet manner;
- Ensure national and local targets as well as any other client waste management aims and aspirations (which are outlined in full in **Appendix A**) are met;
- Ensure that waste management practices are efficient and improve productivity whilst championing environmental protection principles; and
- Look at initiatives to reduce the quantity of waste produced and maximise recycling rates within the hotel. A summary of the possible initiatives that could be explored by THFC are outlined in **Appendix B**.

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2 Anticipated Generation and Bin Numbers

2.1 Waste Generation

In order to determine spatial requirements for waste in the hotel, outline waste generation and bin numbers have been generated. This has been based on the Populous drawings (POP-4494-PLN- GA dated July 2015) and rooms schedule (POP-A-PR-01-SD-XX-4494-0001) and a number of assumptions which are outlined below. LBH do not provide any specific generation rates for commercial or residential waste, therefore waste generation rates from waste audits undertaken in similar developments have been utilised. The waste generation estimates provided in **Table 1** are high level and are based on the following assumptions which are subject to change:

- The hotel will have approximately 275 staff; based on recommendations from the World Tourist organisation that state that a hotel of this standard (a Loft Starwood Brand or similar 4* hotel) would have an average of 12 staff per ten rooms, meaning this hotel would have an average of 275 employees;
- It is assumed 0.9 tonnes of waste per employee per year will be generated in the hotel. This is based on best practice standards published by the UK Hospitality industry;
- Waste will be collected three times per week for mixed recyclables, glass, residual and organic (food) waste by LBH with an average recycling target of 50%; and
- The British Standard (BS5906:2005)- Waste Management in Buildings, with weekly generation rates as follows: 70litres per 1 bed unit, 170 litres per week 2 bed unit, 240litres per week 3 bed unit.

Table 1: Hotel Waste Generation Estimates

Land use	Total number of rooms	Estimated number of employees	Weekly waste generation (kg/week)	Annual waste generation (tonnes/year)
Guestrooms	180	216	3,738	194
Serviced apartments	49	59	1,018	53
Total	229	275	4,756	247

Outline waste generation calculations estimate that approximately 247 tonnes per year of waste will be produced by the hotel.

2.2 Outline Bin Numbers

The waste generation estimates for the hotel have been used to estimate the likely number of bins that will be required within the building, shown in **Table 2**. This has been calculated based on an anticipated collection frequency of three times a week. Mixed recyclables, residual waste and organics will be collected. Other waste streams will be collected at less frequent intervals as and when they are needed.

Table 2: Residential towers and hotel waste bin number estimates

Land use	Bin numbers for recyclables	Bin numbers for glass	Bin numbers for organic (food) waste	Bin numbers for residual waste
Guestrooms and serviced apartments	11 x 1100 litre bins	1 x 240 litre bins	4 x 240 litre bins	2 x 1100 litre bins

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3 Waste Management within the Hotel

3.1 Waste segregation

Within the hotel the following four main streams will be segregated: residual waste, mixed recyclables (paper, cardboard and plastics), glass and organic waste (food) as outlined in **Figure 2**.

Figure 2: Segregation of Waste and Recyclables

3.2 Key Waste Management Operational Principles

Waste management infrastructure within the hotel must ensure that waste management operations are hidden and do not interfere with guests or have a detrimental impact on the aesthetics of the buildings. Adequate spatial provision for clean, hygienic and efficient waste management services has been provided. A summary of how waste will be stored, collected and treated throughout the residential towers is provided below.

Storage

A dedicated waste and recycling store will be located on the ground floor of the hotel. The FM teams will be responsible for collecting waste from the guest rooms and serviced apartments and this will be directly transferred to the waste and recycling store, via the lifts or the stairs within the building, and segregating their waste before placing it into the appropriate receptacle.

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The following LBH information has been used to provide advice to the design team on the recommended spatial provision within each of the residential towers. Assumptions have also been made by BuroHappold, based on previous experience on how much space per bin should be allocated. This includes space for the manoeuvring of the bins:

- The dimensions of a 1100 litre bin are: 985mm(D) x 1260mm(W) x 1370mm(H). It is estimated that each 1100 litre bin will each require approximately 3.5m_2 of space within the residential towers (this includes space around the bins); and
- The dimensions of a 240 litre bin are: 730mm(D) x 580mm(W) x 1080mm(H). It is estimated that each 240 litre bin will require approximately 1.4m_2 of space within the residential towers (this includes space around the bins).

The waste rooms have been positioned as close as reasonably practical to the lifts to minimise the distance that residents have to transport their waste. Access to the waste rooms will be restricted to the FM teams for security purposes. It is anticipated this will be via a swipe card or key code system. All bins will be washed when required by FM staff, a clearly marked area for bin cleaning to occur will be provided.

A summary of the proposed size of bin storage areas is provided in **Table 2** below.

Table 5 : Hotel estimated spatial provision

Land use	Minimum Bin Requirements	Minimum Bulky Waste Requirements	Additional Requirements	Total Space Required
Guestrooms and serviced apartments	13 x 1100 litre bins 5 x 240 litre bins	15m_2	5m_2 bin wash area and overflow capacity	67.5m_2

Figure 3 below outlines that the waste and recycling store is 68m2 and as such is appropriately sized in line with the above.

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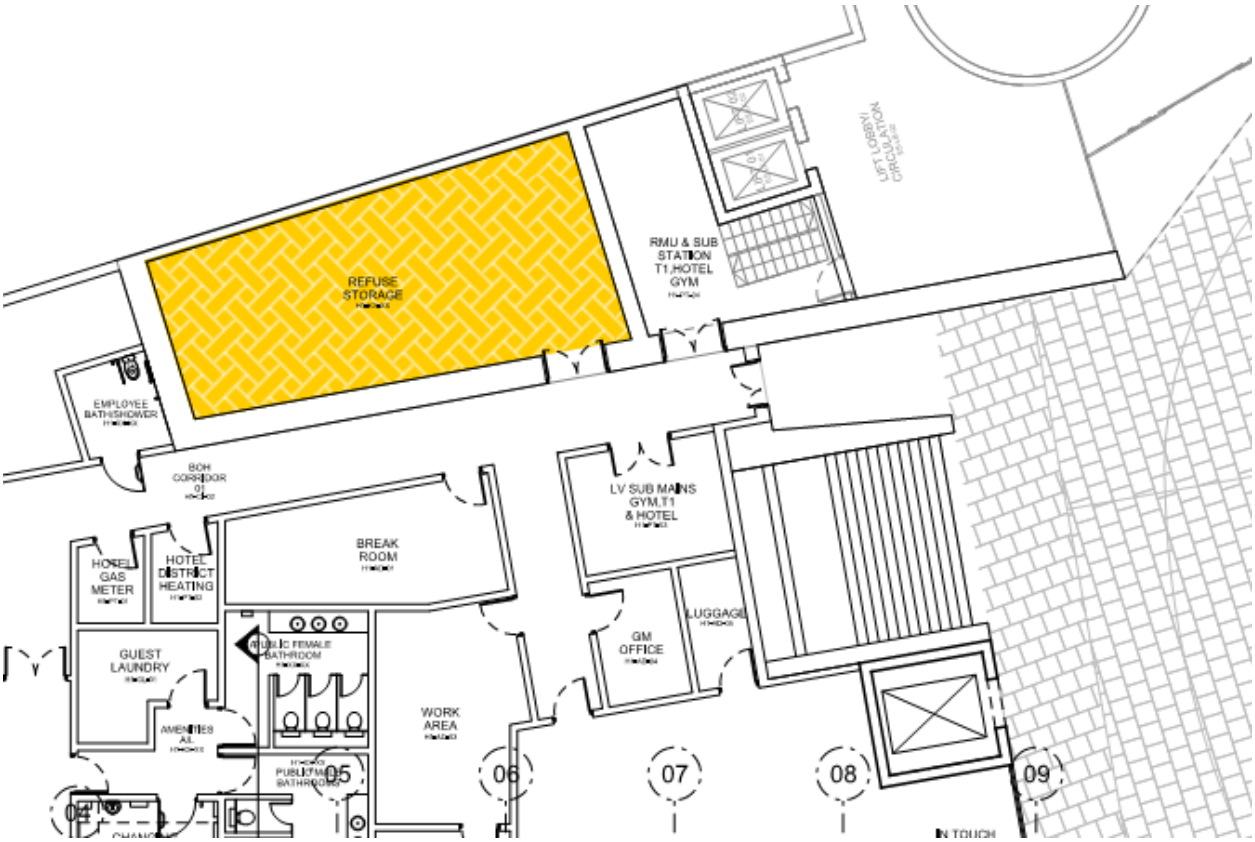
Figure 3: Waste and recycling store



Collection

Discussions with the design team have confirmed that the proposed optimum collection frequency for the development is three times weekly, this is to be agreed with the contractor servicing the development. This will be undertaken by the contractor on designated days.

The proposed strategy is for the FM team to manually move waste by hand out to the laybys either directly outside the hotel entrance on Park Road or to the waste collection bay further up Park Lane which is being created to service Tower D of the THFC Southern Residential development. Both collection points are within 25m of waste and recycling store. This is detailed in **Figure 4** below.

The potential for the use of Electric Vehicles (EVs) to collect the waste on the dedicated days and transport these out to the agreed collection points is to be determined through further work by the onsite FM team and waste contractor. Appropriate provisions have been made to enable this including EV charging points within the Masterplan.

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Figure 4 : Hotel waste collection proposal

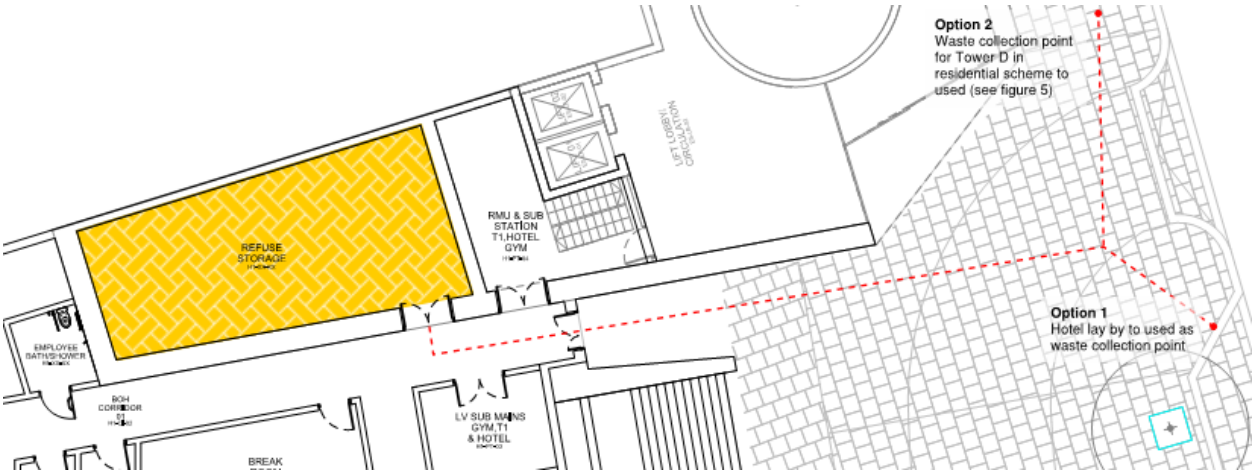
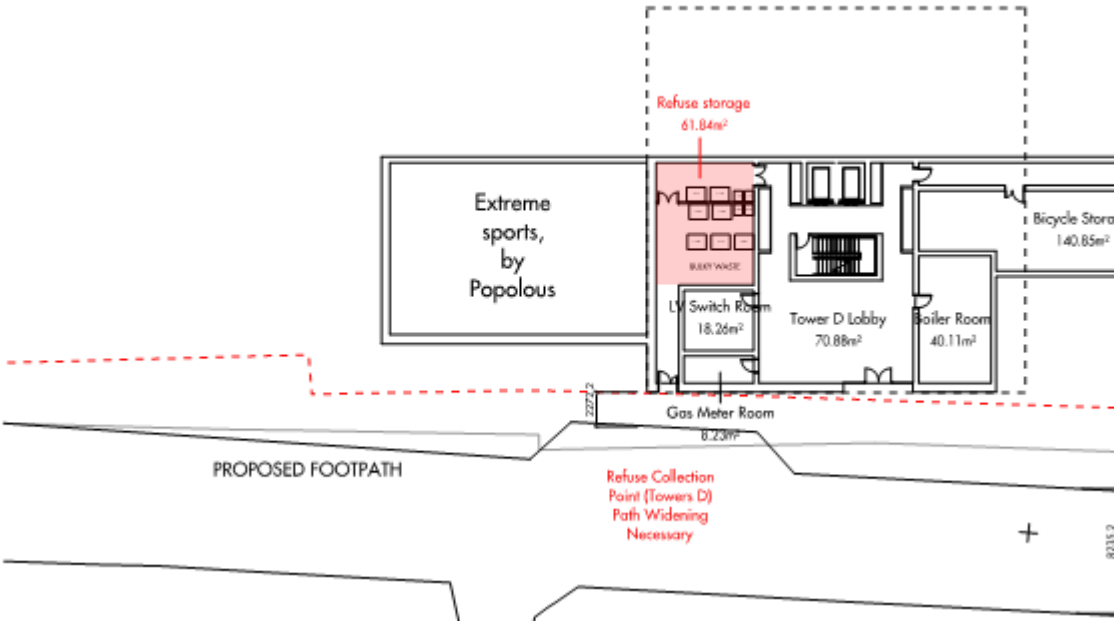

Option 2
Waste collection point for Tower D in residential scheme to used (see figure 5)
REFUSE STORAGE
RMU & SUB STATION T1,HOTEL GYM
LIFT LOBBY CIRCULATION
Option 1
Hotel lay by to used as waste collection point
LV SUB MAINS GYM,T1 & HOTEL
BREAK

Figure 5: Waste collection point located on park Road to be created for THFC Southern Residential scheme



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4 Conclusions

- Productive and efficient waste management practice is required within the hotel to ensure waste is managed in a way that ensures waste management operations are discreet and hygienic. The client hopes that the developments will be a leading example of excellent waste management within the hospitality sector, which achieves a recycling rate of at least 50%, with the aim of improving recycling rates and reducing waste generation each year following opening;
- Outline waste generation calculations estimate that approximately 247 tonnes per year and 4,756 kg per week will likely arise; and
- Waste will be segregated at source, where practicable into the following four main streams: residual waste, mixed recyclables (paper, cardboard, plastics), glass and organic waste (food).

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Appendix A Waste management Practice and Policy

Information on the relevant national and local waste management practice and policy is provided below. There is a large amount of national policy and guidance for residential developments. Little LBH guidance for commercial waste is available. Existing guidance provides comprehensive and detailed storage and collection requirements for new developments within the borough although the focus is on residential developments. However, the guidance provides direction to ensure good practice and effective and efficient waste management.

National

Government Review of Waste Policy 2011

Prioritises efforts to manage waste in line with the waste hierarchy and reduce the carbon effect of waste. This document also encourages waste prevention and re-use, supporting greater efficiency and initiatives which reward and recognises individuals who reduce, re-use and recycle their waste. It also sets out plans to work with councils to increase the frequency and quality of rubbish collections and make it easier to recycle.

Hazardous Waste (England and Wales) (Amendment) Regulations 2009 SI 507

The Hazardous Waste Regulations, which came into force in 2005 provide requirements for controlling and tracking the movement of hazardous waste and bans mixing different types of hazardous waste.

The Waste Strategy for England 2007 (WS2007)

The Department of Environment Food and Rural Affairs (DEFRA) in 2009 updated the published WS2007. There is a focus primarily on Municipal Solid Waste (MSW), as well as making provision for the future creation of recycling / recovery targets for Commercial & Industrial (C&I) waste.

The Waste (England and Wales) (Amended) Regulations 2012

These regulations came into force 29 March 2011. The regulations implement the revised Waste Framework Directive and require businesses to confirm that they have applied the waste management hierarchy when transferring waste. They introduce a two-tier system for waste carrier and broker registration along with a new concept of waste dealer. They also exclude some categories of waste from waste controls and include a small number of radioactive materials.

Making Space for Waste, A Practical Guide for Developers and Local Authorities, June 2010

This document was designed to allow developers to follow a step by step process when considering the design of waste facilities in new developments.

Material Recovery Facility (MRF) Code of Practice for England and Wales:

The regulations require all permitted MRFs processing more than 1,000 tonnes of dry recyclables per annum to measure and report the quality of the input, output and residual waste streams every three months. This is intended to boost confidence in the quality of material produced at MRFs.

The Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations 2012

Aims to achieve requirements of the EU Directive 94/62/EC (as amended) by setting packaging recycling targets on larger UK business.

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Local

The London Plan 2013 (Sustainable Design and Construction Supplementary Planning Guidance April 2014)

Describes an integrated economic, social environmental and transport framework for the development of London over the next 20 to 25 years. The plan sets out to improve the environment and tackle climate change by reducing CO_2 emissions and improving London's recycling performance and waste management. The plan provides updated guidance on designing out waste in buildings during the early stages of a project and on the importance of sufficient and well-designed storage for recyclables, organic and residual waste and the implementation of the waste hierarchy.

The Mayor's Municipal Waste Management Strategy 2011

This document sets out the Mayor's policies and proposals for reducing the amount of municipal waste produced, increasing the amount of waste re-used, recycled or composted, and generating low carbon energy from waste remaining. This strategy also sets out how the Mayor, through the London Waste and Recycling Board, will help develop waste management infrastructure in London. Broadly, the key targets are for zero waste to landfill, a reduction in household waste generation rates of 20%, increased recycling rates to 60% and the generation of energy from waste where appropriate. The Mayor's targets are for London as a whole, placing no specific requirements on individual waste authorities to achieve them.

The Mayor's Business Waste Management Strategy 2011

Sets out initiatives to help London's business (from shops, restaurants, office buildings, manufacturers to construction companies) to save money and reduce harm to the environment through better waste management. Of specific relevance here are the Mayor's proposals to ensure buildings provide suitable storage and access for the management of waste. Additionally, the Mayor will be supporting planning guidance to engage developers, architects and designers in looking for ways to design out waste at source and improve the overall resource efficiency of buildings and infrastructure projects.

London Borough of Haringey (LBH)

Information related to the current waste management practices and policies in LBH has been extracted from the following documents and is summarised below:

- London Borough of Haringey Local Plan;
- London Borough of Haringey Sustainable Design and Construction Supplementary Planning Document (adopted May 2013); and
- North London Joint Waste Strategy.

LBH has strategies in place which seek to deliver more sustainable waste management, namely encouraging waste reduction, maximising re-use and recycling and treating remaining waste as a resource in line with the waste hierarchy.

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LBH currently collects mixed recyclables (paper, cardboard, plastic, glass, cans), organics (food and garden waste) and residual waste. Bulky waste collection is also provided. For businesses, commercial collection services of residual waste and dry recycling can be provided. Local planning guidance states that consideration should be given to how the storage and collection of waste and recyclable material can best be incorporated. Commercial waste collection is dependent on waste type and storage capacity. All waste storage areas, internal and external, must be easily accessible to both collectors and occupants. Enough space should be provided on-site to securely and safely store all waste and recycling containers. Space should be provided inside buildings to allow the separation of waste into containers for recyclables, organics and residual waste.

The LBH require all major planning applications within LBH to provide a Site Waste Management Plan (SWMP) with any planning submission. The content of the plan must include full details of the arrangements for the storage and collection of waste for disposal and waste to be recycled. The plan must make reference to the following:

- The number, type and size of receptacles to be dedicated to storage of residual waste and recyclables;
- The positions where receptacles are to be stored between collections;
- The size, design and materials used in construction of any housing built for the storage of receptacles;
- Access arrangements for persons using receptacles showing that consideration has been given to safety, equalities, convenience, user friendliness and maximum walking distances under building regulations; and
- Access arrangements for collection personnel giving consideration to Health and Safety at Work Act, recommended maximum pulling distances for receptacles, vehicle access, height and turning requirements and the construction and width of pathways, doors and access ways.

LBH is working with the North London Boroughs of Hackney, Enfield, Waltham Forest, Barnet, Camden and Islington as part of the North London Waste Plan (NLWP) to achieve 45% recycling and composting standards by 2015 and 50% by 2020 in line with national policy. LBH aim to meet the targets set in the NLWP in a sustainable manner by:

- Promoting the prevention and reduction of waste produced in the borough, increasing the re-use of materials wherever possible, and seeking to increase recycling and composting of waste;
- Ensuring that new development including change of use provides accessible, adequate and well-designed internal and external storage facilities and recycling infrastructure for both residual and recyclable wastes;
- Ensuring that waste is minimised during the design and construction of new developments, encourage the use of sustainably sourced materials and requiring developments to make on-site provision for the recycling and re-use of construction, demolition and operational wastes;
- Ensuring there is sufficient land allocated for waste management purposes and establishing appropriate policies for waste applications to maximise self-sufficiency through the Joint NLWP and applying its policies to waste development. Additionally the council will safeguard existing waste management sites within LBWF; and
- Encouraging waste to be treated as close to the source as possible and encouraging sustainable movement of waste, maximising the potential use of rail and water transport where waste is not treated at its source.

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Tottenham Hotspur Football Club Waste Management

THFC is committed to manage its waste in line with the waste hierarchy, as shown in **Figure 1**, and other relevant national and local legislation and guidance. The client recognises that in order for the buildings to operate in a productive and efficient manner good waste management is required. A meeting with THFC staff and the design team was held on 12th February 2015 to discuss the preliminary waste management aims and aspirations.

THFC have produced a Waste Management Policy to ensure that all waste generated is disposed of safely and efficiently to ensure good waste management. This document is principally focussed on the stadium although some of the key objectives and principles are relevant to the hotel and residential towers. The key principles and aims and aspirations for the hotel are summarised below:#

Hotel

- Waste is to be managed in line with the waste hierarchy with zero waste sent to landfill;
- Encourage waste minimisation and promote recycling and re-use with a minimum of 50% recycling aiming to target 60% recycling and composting by 2020 in line with London Major and LBH targets;
- Develop productive and efficient waste management practice to ensure the new developments are leading examples of excellent waste management within the hotel sector;
- Provide appropriate storage facilities for recyclables, organic (food) and residual wastes;
- Provision for other wastes including hazardous waste, confidential waste, bulky waste and Waste Electrical and Electronic Equipment (WEEE) should be made available as appropriate;
- Where possible bulk waste on site prior to collection (i.e. compacting) to reduce the volume of waste;
- Keep back of house and public realm areas segregated in terms of waste as far as possible to ensure waste management operations are discreet from residents, guests and visitors;
- Assess opportunities for packaging reductions, reuse or recovery, but in a manner that does not negate need to reduce waste volumes;
- Raise awareness of waste management issues by offering waste management training to all staff; and
- Undertake an annual waste audit to track the quantities of residual waste, organics and recyclables that are produced. This will enable the hotel to monitor their performance against targets.

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Appendix B Hotel Initiatives to Reduce Waste

It is recommended that the following initiatives are considered by THFC to reduce the amount of waste and improve recycling and re-use within the hotel. If these initiatives are adopted, it is essential that spatial provision is allocated:

Type	Option
Sustainable Catering Alternatives	
Reduce	Promote the serving of beer on tap to reduce the plastic and glass produced
Reduce	Do not serve drinks in tins and aluminium cans to eliminate metal as a waste stream
Reduce	Use of glasses to serve drinks instead of disposable cups, particularly in hospitality areas
Reduce	Minimise packaging of products and encourage the backhauling and re-use of packaging
Reduce	Consider the use of compostable packaging for crisps, chocolate, drinks and other snacks
Reduce	Use an inventory system to provide control over supplies to avoid over-ordering and waste
Reduce	Use of part-prepared food (i.e. peeled vegetables, de-boned meat etc.) and freezing of food
Reduce	Review of portion sizes to ensure only as much food as is needed is prepared and cooked
Reduce	Use of cutlery, china and glass as oppose to disposable crockery and cutlery
Reduce	Inform staff that they are to hand out straws, lids, and napkins only when requested
Reduce	All condiments should be dispensed from bulk containers rather than single-serve packets
Reduce	Consider purchasing beverage mixes in concentrated form
Reduce	Use of individually dispensed, unwrapped plastic utensils, biodegradable utensils, or none at all
Recycle	Use of locally sourced food and drink and donate surplus food to local food banks (if edible)
Recycle	Streamline drinks sales, ideally to the complete use of plastic bottles as oppose to glass
Recycle	Streamline food packaging, ideally to the same material (cardboard or plastic) to make it easier to achieve high quality recycled materials
Other Alternatives	
Reduce	Utilising washable cloth towels instead of paper towels to clean up behind the counters
Reduce	Use of hand dryers instead of paper towels
Reduce	Minimise paper-based marketing and circulate by email and buying recycled content supplies
Recycle	Bins at ticket turnstiles to encourage disposal prior to entering i.e. cans, half eaten food etc.
Recycle	Sell or give old equipment and furniture to local businesses, charity or educational projects
Recycle	Recycling printer cartridges
Use of Technology	
Reduce	Consider the use of a dewatering system to reduce the volume of food waste
Recycle	A glass crusher could be purchased. This would require clear and coloured glass to be separated and then crushed outside of operating hours to avoid noise disturbing matches
Recycle	Flatten and bale cardboard generated from packaging to reduce bulk using a baler
Recycle	Bale plastic generated from general concourse areas using a baler

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